

MOCHALOV, K.N

K.N. MOCHALOV

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Exam. Radio-technological Institute Lenin S.M. Kirov

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REMARKS: This book is intended for industrial chemists, technologists, scientists, teachers, and research students in applied chemistry.

CONTENTS: The collection contains reports by faculty members of the sponsoring institute and also commemorates the 75th year of the birth and first anniversary of the death of Professor Aleksey Mikhaylovich Vasil'yev, Doctor of Chemical Sciences and head of the Faculty. A review of Vasil'yev's scientific activities is given along with a chronological bibliography of his published works and that of members of the Institute under his leadership. Articles of the collection deal mainly with electrochemistry and the analysis of electrochemical processes, chemical analysis, and investigation of the prospective application of physicochemical phenomena in industrial processes. Part of the collection is devoted to the properties of building materials with additives, etc. References are given at the end of each article.

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K. N. MOCHALOV

2(0) KAZAN. Khimiko-tekhnologicheskii Institut imeni S.M. Kirova
 1979/2019
 175 p. Krasnodar, 1979. 300 copies printed.

Editorial Board: K.B. Mochalov (Resp. Ed.), Professor, A.A. Trifunov, (Resp. Ed.),
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FOREWORD: This book is intended for industrial chemists, technologists, scientists,
 teachers, and research students in applied chemistry.

CONTENTS: The collection contains reports by faculty members of the sponsoring in-
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 and head of the Faculty. A review of Vasil'yev's scientific activities is given
 along with a chronological bibliography of his published works and that of members
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 with electro-chemistry and the analysis of electrochemical processes, chemical
 synthesis, and industrial processes of the prospective application of physical, chemical
 phenomena in industrial processes, etc., cleansing with ultrasound, chemical
 properties of building materials with additives, etc. References are given
 at the end of each article.

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STOLOV, A.L.; MOCHALOV, K.N.

Investigating elementary processes and chemical reactions in
a torch discharge. Fiz.sbor. no.4:323-327 '58. (MIRA 12:5)

1. Kazanskiy gosudarstvennyy universitet imeni V.I.Ul'yanova-
Lenina i Kazanskiy khimiko-tekhnologicheskoy institut imeni
S.M.Kirova.

(Electric discharges through gases)

MOCHALOV, K.N.; SHIFRIN, Kh.V.; BOGONOSTSEV, A.S.

Boron hydrides, new reagents in analytical chemistry. Report
No.1. Trudy KKHTI no.26:135-139 '59. (MIRA 15:5)

1. Kafedra analiticheskoy khimii Kazanskogo khimiko-tehnologicheskogo instituta imeni S.M.Kirova.
(Boron hydrides) (Chemistry, Analytical)

MOCHALOV, K.N.; BOGONOSTSEV, A.S.; SHIFRIN, Kh.V.

Boron hydrides, new reagents in analytical chemistry. Report No.2:
Production of pure sodium and potassium boron hydrides. Trudy
KKHTI no.26:140-144 '59. (MIRA 15:5)

1. Kafedra analiticheskoy khimii Kazanskogo khimiko-tekhnologicheskogo
instituta imeni S.M.Kirova.
(Boron hydrides) (Chemistry, Analytical)

MOCHALOV, K.M.; BOGONOSTSEV, A.S.; SHIFRIN, Kh.V.; Prinimala uchastiye:
GOLUBEVA, V.G.

Boron hydrides, new reagents in analytical chemistry. Report
No.3: Boron hydride method for determining iron. Trudy KKHTI
no.26:145-150 '59. (MIRA 15:5)

1. Kafedra analiticheskoy khimii Kazanskogo khimiko-tehnologicheskogo instituta imeni S.M.Kirova.
(Iron--Analysis) (Boron hydrides)

80061

S/020/60/132/01/35/064
B011/B126

5.2400(A)

AUTHORS: Mochalov, K. N., Gil'manshin, G. G.

TITLE: The Polarographic Behavior of Sodium¹-, Potassium¹-, and Lithium¹ Boron Hydrides¹

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. 1, pp. 134-137

TEXT: The views on the theme in the title are directly contradictory (Refs. 6,7) in the few (2) relevant works. In their experiments the authors used commercial (~80%) and purified (98%) boron hydrides. They used the micropolarograph of Heyrovský, model M-102 with a dropping mercury electrode. For NaBH_4 in NaOH they have found a single wave, namely that of the ion BH_4^- . Its nature was determined by further experiments (Fig. 1, Table 1). The position and character of these waves remain practically unchanged through variations in the concentration of boron hydride and through changes in the composition of the background. This result disproves the data of R. L. Pecsok (Ref. 6). The authors studied the dependence of the height of the boron hydride wave on the concentration of BH_4^- ions. The dependence is linear between 10^{-3} and 10^{-1} moles/l. The limiting current here is no complete diffusion current. The metallic boron hydrides

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The Polarographic Behavior of Sodium-, Potassium-,
and Lithium Boron Hydrides

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B011/B126

decompose relatively quickly in aqueous, especially in acid solutions, so that the polarographing is made very difficult. Therefore, the solutions used were prepared with the use of the relevant alkalis and alkaline borate buffer mixtures. From this it was established that, for the same concentration, the wave height is highly dependent on the pH in the solution. With a pH above 12.5 the boron hydrides are relatively stable, but the wave was practically missing altogether. Thus, it follows that in reality the wave does not belong to the BH_4^- ion, but to one of its hydrolysis products. These occur in several stages in one of which diborane is given off under certain conditions. However, diborane can react with alkalis and form the so-called hypoborates (see scheme). Gaseous diborane was passed through concentrated KOH-, NaOH-, and LiOH solutions when cooled. The resulting hypoborate solutions showed the same wave with $E_{1/2} = -0.6$ v. The dilution of these solutions led to a proportional decrease in wave height. When the solution is left standing, the height of the "hypoborate" wave, exactly as the "boron hydride" wave, decreases according to an equation of the first order (Ref. 8). When the solutions are boiled and strongly acidified, the wave disappears after the destruction of the hypoborates. Thus, the "boron hydride" wave is basically a "hypoborate" wave. It is difficult to say to which of the 3 hypoborates the wave belongs. However, it cannot belong to the $\text{BH}_3(\text{OH})^-$

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The Polarographic Behavior of Sodium-, Potassium-,
and Lithium Boron Hydrides

S/020/60/132/01/35/064
B011/B126

ion. It is more likely that the $\text{BH}(\text{OH})_3^-$ ion is responsible for the wave. The electrodic reaction which the said wave causes can obviously not (contrary to Pecsok) be brought about by oxidation of the BH_4^- ions, but must be due to the oxidation of the hypoborate ions (see scheme). Of the two schemes set out, the second is more likely. The following are mentioned: D. Il'kovič, A. F. Zhigach, V. I. Mikheyeva, V. Yu. Surs, Kh. V. Shifrin, A. A. Bogonostsev, O. I. Rusetskiy, and T. N. Dymova. There are 1 figure, 1 table, and 14 references, 4 of which are Soviet. 4

ASSOCIATION: Institut obshchey i neorganicheskoy khimii Akademii nauk SSSR
(Institute of General and Inorganic Chemistry of the Academy of
Sciences, USSR)

PRESENTED: December 26, 1959, by I. I. Chernyayev, Academician

SUBMITTED: December 15, 1959

Card 3/3

37638

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B101/B110

11.1240

AUTHORS: Mochalov, K. N., and Gil'manshin, G. G.

TITLE: Polarographic study of alkali-metal boron hydrides

PERIODICAL: Zhurnal fizicheskoy khimii, v. 36, no. 5, 1962, 1089-1094

TEXT: With a view to elucidating the processes that occur in the hydrolysis of NaBH_4 , KBH_4 , LiBH_4 , and C_5BH_4 solutions of these boron hydrides were examined polarographically in aqueous solutions by using a recording polarograph (type 7-77-46, "orion", Hungary), a mercury dropping electrode, and a calomel reference electrode. The boron hydrides were prevented from decomposing by being dissolved respectively in 0.2 M NaOH, KOH, and LiOH. Investigation of the polarization within the range +0.2 to -2.0 v at room temperature showed that, unlike what had been found by R. L. Pecsok (see below), the three boron hydrides gave rise to the same wave, namely $E_{1/2} = -0.65$ v. Impurities (e.g., sodium alcoholates) did not affect $E_{1/2}$. As a result of hydrolysis of the boron hydride, the wave amplitude decreased with time. This process can be accelerated by

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Polarographic study of alkali- ...

S/076/62/036/005/013/013
B101/B110

acidification, heating, or catalysis. Different backgrounds did not affect the wave. The wave $E_{1/2} = +0.105 - 0.013$ pH found by Pecsok is attributed to the anodic dissolution of Hg in an alkaline medium. Results: (a) Change in pH and temperature ($15-35^{\circ}\text{C}$) do not affect the wave potential. The wave amplitude of NaBH_4 and KBH_4 in the range of $1 \cdot 10^{-3}$ to $1 \cdot 10^{-4}$ moles/l is a linear function of the concentration of boron hydride. (b) The wave amplitude decreases with increasing pH. At pH > 12.5 - i.e., if no hydrolysis takes place at all - no further waves will appear. Polarographic analysis of CaH_2 and B_2H_6 showed no wave with the first compound, but $E_{1/2} = -0.65$ v when B_2H_6 was bubbled through NaOH or KOH. From this it is concluded that the wave is due to the resulting hypoborates. Polarographic results obtained from stepwise hydrolyzed LiBH_4 and from $\text{NaBH}(\text{OCH}_3)_3$ indicate that the wave is not produced by the BH_4^- ion but by the $\text{BH}(\text{OH})_3^-$ ion. Analysis of the polarographic kinetic curves for NaBH_4 and KBH_4 confirmed that the hydrolysis of these compounds followed the theory of the kinetics of consecutive processes. There are

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S/C76/62/036/005/013/013
B101/B110

Polarographic study of alkali- ...

4 figures and 2 tables. The most important English-language reference is:
R. L. Pecsok, J. Amer. Chem. Soc., 75, 2862, 1953.

ASSOCIATION: Kazanskiy khimiko-tekhnologicheskii institut im. S. M.
Kirova (Kazan' Institute of Chemical Technology imeni S. M.
Kirov)

SUBMITTED: August 19, 1961

Card 3/3

X

MOCHALOV, K.N.; BASHKIROVA, T.I.

Reactions of sodium borohydride with solutions of cadmium salts.
Trudy KKHTI no.30:178-184 '62. (MIRA 16:10)

MOCHALOV, K.N.; SALIKHOV, S.G.

Study of metal borohydrides and related compounds by the method
of nuclear magnetic resonance (a preliminary report). Trudy KKHTI
no.30:282 '62. (MIRA 16:10)

MOCHALOV, K.N.; POLIKARPOV, S.I.

Heavy metal "borides," new hydrogenation catalysts. Trudy VHTI
no.30:283-288 '62. (MIRA 16:10)

MOCHALOV, K.N.; SHIFRIN, Kh.V.; BOGNOSTSEV, A.S.

Hydrolysis of sodium borohydride. Zhur. fiz. khim. 37 no.11:
2404-2407 N'63. (MIRA 17:2)

1. Kazanskiy khimiko--tekhnologicheskiiy institut.

ACCESSION NR: AP4016520

S/0195/64/005/001/0174/0177

AUTHOR: Mochalov, K. N.; Shifrin, Kh. V.; Bogonostsev, A. S.

TITLE: Kinetics of potassium borohydride hydrolysis

SOURCE: Kinetika i kataliz, v. 5, no. 1, 1964, 174-177

TOPIC TAGS: potassium borohydride, sodium borohydride, lithium borohydride, cesium borohydride, alkali borohydride hydrolysis

ABSTRACT: The present work was prompted by the absence of data on KBH_4 , which is a much later discovered product than NaBH_4 , but less known, although it is now industrially produced in the U.S.A. A study of KBH_4 and NaBH_4 hydrolysis in buffer borate solutions (as well as of LiBH_4 and CsBH_4) carried out by G. G. Gil'manshin in the laboratory of the Kazanskiy khimiko-tekhnologicheskii institut (Kazan' Chemical-Engineering Institute) showed that this reaction is practically independent of the cation action. Due to the proportionality of the reaction rate of the borohydride ion and the H^+ ion, it follows that an intermediate complex is formed (BH_4^-). Its

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ACCESSION NR: AP4016520

destruction may lead to borine $BH_3 + H_2$ which combines with water into $BH_2(OH)$ and $BH(OH)_2$ and with OH^- into hypoborates. Finally, in a strongly acidic medium, borine dimerizes with liberation of diborane B_2H_6 . The complex character of hydrolysis was proven by polarographic studies made by Gil'Manshin and by a chromatographic study made by V. S. Khain. $LiBH_4$ has the greatest reducing capacity. However, the polarizing action of cations is leveled in an aqueous medium, explaining the same interaction rate of different alkali borohydrides with water. Orig. art. has: 2 figures, 12 formulas and 2 tables.

ASSOCIATION: Kazanskiy khimiko-tekhnologicheskii institut (Kazan Chemical-Engineering Institute)

SUBMITTED: 17Jul 62

DATE ACQ: 18Mar64

ENCL: 00

SUB CODE: CH

NO REF SOV: 005

OTHER: 008

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EXP(1)	EXP(2)	EXP(3)	EXP(4)	EXP(5)	EXP(6)	EXP(7)	EXP(8)	EXP(9)	EXP(10)	EXP(11)	EXP(12)	EXP(13)	EXP(14)	EXP(15)	EXP(16)	EXP(17)	EXP(18)	EXP(19)	EXP(20)	EXP(21)	EXP(22)	EXP(23)	EXP(24)	EXP(25)	EXP(26)	EXP(27)	EXP(28)	EXP(29)	EXP(30)	EXP(31)	EXP(32)	EXP(33)	EXP(34)	EXP(35)	EXP(36)	EXP(37)	EXP(38)	EXP(39)	EXP(40)	EXP(41)	EXP(42)	EXP(43)	EXP(44)	EXP(45)	EXP(46)	EXP(47)	EXP(48)	EXP(49)	EXP(50)	EXP(51)	EXP(52)	EXP(53)	EXP(54)	EXP(55)	EXP(56)	EXP(57)	EXP(58)	EXP(59)	EXP(60)	EXP(61)	EXP(62)	EXP(63)	EXP(64)	EXP(65)	EXP(66)	EXP(67)	EXP(68)	EXP(69)	EXP(70)	EXP(71)	EXP(72)	EXP(73)	EXP(74)	EXP(75)	EXP(76)	EXP(77)	EXP(78)	EXP(79)	EXP(80)	EXP(81)	EXP(82)	EXP(83)	EXP(84)	EXP(85)	EXP(86)	EXP(87)	EXP(88)	EXP(89)	EXP(90)	EXP(91)	EXP(92)	EXP(93)	EXP(94)	EXP(95)	EXP(96)	EXP(97)	EXP(98)	EXP(99)	EXP(100)	EXP(101)	EXP(102)	EXP(103)	EXP(104)	EXP(105)	EXP(106)	EXP(107)	EXP(108)	EXP(109)	EXP(110)	EXP(111)	EXP(112)	EXP(113)	EXP(114)	EXP(115)	EXP(116)	EXP(117)	EXP(118)	EXP(119)	EXP(120)	EXP(121)	EXP(122)	EXP(123)	EXP(124)	EXP(125)	EXP(126)	EXP(127)	EXP(128)	EXP(129)	EXP(130)	EXP(131)	EXP(132)	EXP(133)	EXP(134)	EXP(135)	EXP(136)	EXP(137)	EXP(138)	EXP(139)	EXP(140)	EXP(141)	EXP(142)	EXP(143)	EXP(144)	EXP(145)	EXP(146)	EXP(147)	EXP(148)	EXP(149)	EXP(150)	EXP(151)	EXP(152)	EXP(153)	EXP(154)	EXP(155)	EXP(156)	EXP(157)	EXP(158)	EXP(159)	EXP(160)	EXP(161)	EXP(162)	EXP(163)	EXP(164)	EXP(165)	EXP(166)	EXP(167)	EXP(168)	EXP(169)	EXP(170)	EXP(171)	EXP(172)	EXP(173)	EXP(174)	EXP(175)	EXP(176)	EXP(177)	EXP(178)	EXP(179)	EXP(180)	EXP(181)	EXP(182)	EXP(183)	EXP(184)	EXP(185)	EXP(186)	EXP(187)	EXP(188)	EXP(189)	EXP(190)	EXP(191)	EXP(192)	EXP(193)	EXP(194)	EXP(195)	EXP(196)	EXP(197)	EXP(198)	EXP(199)	EXP(200)	EXP(201)	EXP(202)	EXP(203)	EXP(204)	EXP(205)	EXP(206)	EXP(207)	EXP(208)	EXP(209)	EXP(210)	EXP(211)	EXP(212)	EXP(213)	EXP(214)	EXP(215)	EXP(216)	EXP(217)	EXP(218)	EXP(219)	EXP(220)	EXP(221)	EXP(222)	EXP(223)	EXP(224)	EXP(225)	EXP(226)	EXP(227)	EXP(228)	EXP(229)	EXP(230)	EXP(231)	EXP(232)	EXP(233)	EXP(234)	EXP(235)	EXP(236)	EXP(237)	EXP(238)	EXP(239)	EXP(240)	EXP(241)	EXP(242)	EXP(243)	EXP(244)	EXP(245)	EXP(246)	EXP(247)	EXP(248)	EXP(249)	EXP(250)	EXP(251)	EXP(252)	EXP(253)	EXP(254)	EXP(255)	EXP(256)	EXP(257)	EXP(258)	EXP(259)	EXP(260)	EXP(261)	EXP(262)	EXP(263)	EXP(264)	EXP(265)	EXP(266)	EXP(267)	EXP(268)	EXP(269)	EXP(270)	EXP(271)	EXP(272)	EXP(273)	EXP(274)	EXP(275)	EXP(276)	EXP(277)	EXP(278)	EXP(279)	EXP(280)	EXP(281)	EXP(282)	EXP(283)	EXP(284)	EXP(285)	EXP(286)	EXP(287)	EXP(288)	EXP(289)	EXP(290)	EXP(291)	EXP(292)	EXP(293)	EXP(294)	EXP(295)	EXP(296)	EXP(297)	EXP(298)	EXP(299)	EXP(300)	EXP(301)	EXP(302)	EXP(303)	EXP(304)	EXP(305)	EXP(306)	EXP(307)	EXP(308)	EXP(309)	EXP(310)	EXP(311)	EXP(312)	EXP(313)	EXP(314)	EXP(315)	EXP(316)	EXP(317)	EXP(318)	EXP(319)	EXP(320)	EXP(321)	EXP(322)	EXP(323)	EXP(324)	EXP(325)	EXP(326)	EXP(327)	EXP(328)	EXP(329)	EXP(330)	EXP(331)	EXP(332)	EXP(333)	EXP(334)	EXP(335)	EXP(336)	EXP(337)	EXP(338)	EXP(339)	EXP(340)	EXP(341)	EXP(342)	EXP(343)	EXP(344)	EXP(345)	EXP(346)	EXP(347)	EXP(348)	EXP(349)	EXP(350)	EXP(351)	EXP(352)	EXP(353)	EXP(354)	EXP(355)	EXP(356)	EXP(357)	EXP(358)	EXP(359)	EXP(360)	EXP(361)	EXP(362)	EXP(363)	EXP(364)	EXP(365)	EXP(366)	EXP(367)	EXP(368)	EXP(369)	EXP(370)	EXP(371)	EXP(372)	EXP(373)	EXP(374)	EXP(375)	EXP(376)	EXP(377)	EXP(378)	EXP(379)	EXP(380)	EXP(381)
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APR 20 1964

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AUTHOR: Mochalov, K. N.; Khain, V. S.; Gelf'manshin, G. G.

1. TITLE: Kinetic Investigation of the intermediate stages of BH₃-ion hydrolysis

SOURCE: Kinetika i kataliz, v. 6, no. 3, 1965, 541-544

TOPIC TAGS: hydrolysis, sodium borohydride, kinetics

ABSTRACT. Kinetics of the elementary steps of the consecutive reaction sequence of the hydrolysis of sodium borohydride was studied at pH of 9.52 to 13.98 and at 15°, 25°, and 35±0.1°C. The ionic strength of the buffer solutions used was 0.4 at 25°C. The object of this work was to elucidate the mechanism of hydrolysis of borohydrides. Hydrolysis of the most stable intermediate ions $[BH_3OH]^-$, $[BH_2(OH)]_2^-$, and $[BH(OH)]_3^-$ was studied separately using alkaline solutions of $NaBH_3OH$, $NaBH_2(OH)_2$, and $NaBH(OH)_3$. The pH was measured with an accuracy of 0.001 using a Danish-made pH-meter (Radiometer 72 Emdrupvej, Copenhagen). In the consecutive reaction of hydrolysis of the BH_4^- ion, the following step is rate limiting: $BH_4^- + BH_3OH^-$. This rate-limiting step is made up of two elementary steps and it initiates according to

1998

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ACCESSION NR: AP5016815

$BH_3 \cdot NH_3 \rightleftharpoons [BH_3 \cdot NH_3]$. The intermediate ions, BH_3OH^+ and $BH_2(OH)_2^+$, are slightly less stable than the BH_3 ion. The least stable of the intermediate ions is $BH(OH)_2^+$ which hydrolyzes about 1000 times faster than BH_3OH^+ and $BH_2(OH)_2^+$. Hydrolysis of $NaBH_3$, $NaBH_3OH$, $NaBH_2(OH)_2$, and $NaBH(OH)_3$ is a first order reaction. The values of the first order rate constants and the times for half-conversion at given pH and temperature deviated 5 to 7% from the respective average values for the series of experiments. At a given temperature the rate of hydrolysis is inversely proportional to pH. The first order rate constant for all elementary hydrolysis steps is proportional to the activity of the hydrogen ions a_{H^+} . The overall kinetic equation of $NaBH_3$ hydrolysis is

$$-\frac{dc}{dt} = K_2 \cdot C \cdot a_{H^+}$$

where C is concentration of $NaBH_3$ at time t , a_{H^+} is activity of the hydrogen ions, and K_2 is the second order rate constant. K_2 is dependent only upon reaction temperature. The thermal coefficient of the rate constant in the 15° to 35°C range for $NaBH_3$, $NaBH_3OH$, $NaBH_2(OH)_2$, and $NaBH(OH)_3$ is 2.02, 1.85, 1.88 and 1.83 respectively. The corresponding energies of activation are 12.8, 11.2, 11.0, and 11.0 Kcal/mol. Dependence of the individual rates of hydrolysis K_2 upon temperature (T)

Card 2/3

1963-65

ACCESSION NO. AP5016815

and dependence of the respective half-conversion times ($t_{1/2}$) upon temperature (T) and pH are:

$$\text{NaBH}_4: \ln K_p = -\frac{5449}{T} + 40.20; \lg t_{1/2} = \text{pH} - (0.0347 - 1.92)$$

$$\text{NaBH}_4 \cdot \text{H}_2\text{O}: \ln K_p = -\frac{5037}{T} + 37.68; \lg t_{1/2} = \text{pH} - (0.0277 + 0.357)$$

$$\text{NaBH}_4(\text{OH})_2: \ln K_p = -\frac{5544}{T} + 37.63; \lg t_{1/2} = \text{pH} - (0.0277 + 0.384)$$

$$\text{NaBH}(\text{OH})_3: \ln K_p = -\frac{5444}{T} + 37.63; \lg t_{1/2} = \text{pH} - (0.0247 + 4.00)$$

Replacement of sodium by Li, K, or Fe affects neither the overall rate nor the rates of the individual steps of hydrolysis of the respective hydrides and hydroxyhydrides. Orig. art. has: 1 table, 2 figures, 11 formulas.

ASSOCIATION: Kazanskiy khimiko-tekhnologicheskii institut im. S. M. Kirova (Kazan Chemical Technological Institute)

SUBMITTED: 1 May 64

ENCL: 00

SUB CODE: CC

NO REF SOV: 005

OTHER: 007

Card 3/3

MOCHALOV, K.N.; KHAIN, V.S.

Reaction of sodium borohydride with potassium ferricyanide.
Zhur. neorg. khim. 10 no.2:532-533 F '65. (MIRA 18:11)

1. Kazanskiy khimiko-tekhnologicheskiy institut imeni Kirova,
kafedra analiticheskoy khimii. Submitted May 30, 1964.

MOCHALOV, K.N.; KHAIN, V.S.

Mechanism of ferricyanide ion reduction by sodium borohydride.
Zhur. fiz. khim. 39 no.8:1960-1964 Ag '65. (MIRA 18:9)

1. Kazanskiy khimiko-tekhnologicheskii institut.

L 27778-55 ZPT(G)/EPR/EMK(S)/EPR(1)/EPR(2) P-4/Pr-4/P-4 RPL
 ACCESSION NR: AP8014855 EM/NW/JM OR/0020/85/182/003/0613/0616

AUTHOR: Mochalov, K.N.; Khain, V.S.; Gilmanshin, G.G.

TITLE: Generalized mechanism of hydrolysis of the borohydride ion and diborane

SOURCE: AN SSSR, Doklady, v. 162, no. 3, 1985, 613-616

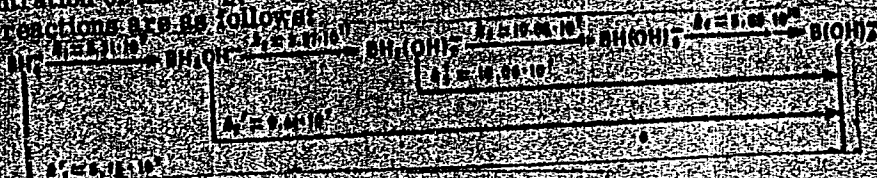
TOPIC TAGS: diborane hydrolysis, borohydride hydrolysis, borohydride ion, hydrolysis kinetics

ABSTRACT: On the basis of tabulated data, the authors have formulated a single, general mechanism encompassing the hydrolysis of the borohydride ion and diborane in neutral, acid, and alkaline media. In order to determine the relative rates of the various successive reactions of this mechanism, a study was made of the kinetics of the conversions $BH_4^- \rightarrow BH_3OH^-$, $BH_3OH^- \rightarrow BH_2(OH)_2^-$, and $BH_2(OH)_2^- \rightarrow BH(OH)_3^-$. It was noted that the rate of reaction of potassium ferricyanide with a solution of borohydride is determined by the rate of hydrolysis of the latter, and that this rate coincides with the rate of conversion of BH_4^- to the BH_3OH^- ion. Hence, the conversion $BH_4^- \rightarrow BH_3OH^-$ (via the intermediate complex $H^+BH_4^-$) is the rate-determining step of the consecutive reaction of borohydride hydrolysis. The conversion $BH_2(OH)_2^- \rightarrow BH(OH)_3^-$ is the first step in the hydrolysis of $BH_2(OH)_2^-$ to the borate; the second stage of this process, card 1/2

57778-65

ACCESSION NR: AP5014855

$\text{BH}(\text{OH})_2 \rightarrow \text{B}(\text{OH})_3$ is approximately 500 times faster than the first. It is apparent that an aqueous solution of borohydride constitutes a complex system made up of many components. The concentrations of the latter were found, and the quantitative composition of the system was determined at various points in time; the concentrations of the BH_3OH^- and $\text{BH}(\text{OH})_3^-$ ions remain low (0.02-0.05 mole%) during the entire process, whereas the concentration of the $\text{BH}_2(\text{OH})_2^-$ ion attains 25.7 mole%. The rate constants of the consecutive reactions are as follows:



Orig. art. has: 3 tables and 5 formulas.

ASSOCIATION: Kazanskiy khimiko-tekhnologicheskii institut im. S. M. Kirova
(Kazan' Chemical Engineering Institute)

SUBMITTED: 06Nov64

ENCL: 00

SUB CODE: CC

NO REF SOV: 007

OTHER: 011

Card 2/2

L 36489-66 EWT(m)/EWP(t)/ETI IJP(c) JD/RDN
ACC NR: AP6027080 SOURCE CODE: UR/0020/66/167/002/0361/0364

AUTHOR: Mochalov, K. N.; Konrat'yev, S. N.; Blagoveshchenskaya, G. I.; Sidorov, Ye. Ye.
ORG: Kazan' Chemico-Technological Institute im. S. M. Kirov (Kazansky khimiko-
tekhnologicheskii institut) 27
15

TITLE: Preparation of pure selenium trioxide and some of its properties

SOURCE: AN SSSR. Doklady, v. 167, no. 2, 1966, 361-364

TOPIC TAGS: selenium compound, chemical synthesis, dehydration, selenic acid, phosphorus oxide, chemical laboratory apparatus, chemical separation, chemical purity, vacuum distillation

ABSTRACT: The Toul-Dostal method of synthesizing selenium trioxide, involving the dehydration of anhydrous selenic acid with phosphorus pentoxide: $H_2SeO_4 + P_2O_5 \rightarrow SeO_3 + 2HPO_3$, was improved to give a more reliable and suitable method by omitting the use of a drying chamber.

Phosphorus pentoxide and 98-100% selenic acid (without H_2SeO_3) are mixed in a 12 : 10 weight ratio in the reactor section of a completely closed glass apparatus. After sealing of the leading tube the apparatus is connected to a vacuum pump, and the reaction mixture is heated to 140-145°. At this temperature and a pressure of 1-2 mm Hg the basic mass of selenium trioxide is separated. SeO_3 vapors are condensed in a collector which is cooled with running water. After completion of the reaction necks to the collector are sealed and the cooler is removed. The selenium trioxide in the collector

Card 1/2

UDC: 546.23

0917

0073

L 36480-66

ACC NR: AP602708C

contains only the impurity of selenic acid. To remove it the substance is vacuum-distilled twice. This article was presented by Academician I. I. Chernyayev on 24 June 1965. Orig. art. has: 1 figure. [JPRS: 36,455]

SUB CODE: 07 / SUBM DATE: 20Jun65 / ORIG REF: 001 / OTH REF: 010

Card 2/2 *MLP*

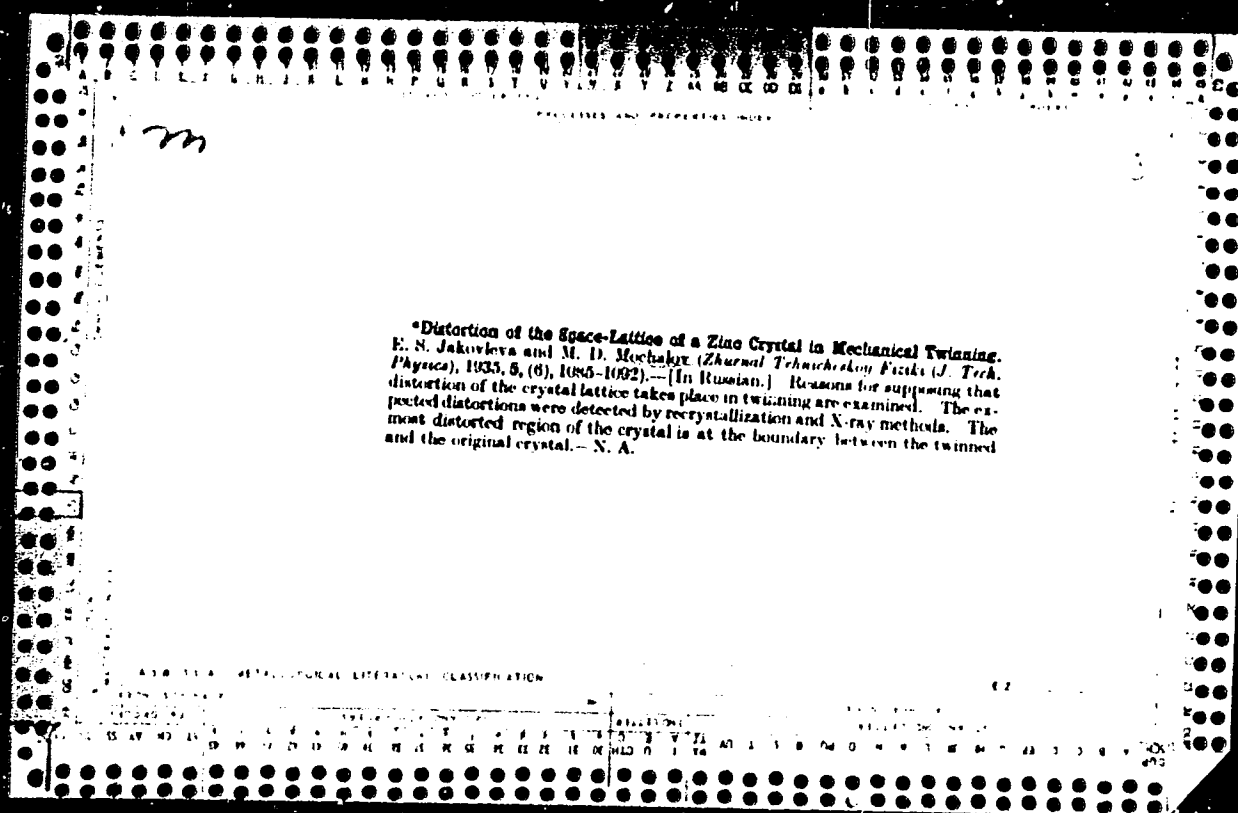
MOCHALOV, L. P.

"The Task of Calculating the Tension in the Supporting Structure of a Paddle Wheel when a Paddle Strikes a Solid Object." Min Higher Education USSR, Gor'kiy Polytechnic Inst Imeni A. A. Zhdanov, Gor'kiy, 1955
(Dissertation for the Degree of Candidate of Technical Sciences)

SC: Knizhnaya Letopis', No. 32, 6 Aug 55

MOCHALOV, L.N., kand.tekhn.nauk

Problem on the determination of stresses in coupling arrangements
of a sectional vessel under the effect of impact. Trudy GPI 15
no.1:21-28 '61 [i.e. '59]. (MIRA 15:11)
(Strains and stresses)



1ST AND 2ND CROSES										3RD AND 4TH CROSES									
PROCESSES AND PROPERTIES INDEX																			
<p><i>Methods for Obtaining Magnesium Single Crystals from a Melt. M. J. Mochalov (Zhurnal Tekhnicheskoy Fiziki (J. Tech. Physics), 1950, 20, (4), 604) (607). [In Russian.] A full description is given of the method of production of magnesium single crystals (5 x 7 x 150 mm.) in an iron mold placed horizontally in the furnace. N. A.</i></p>																			
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION																			
SIGNATURE										SIGNATURE									
SIGNATURE										SIGNATURE									

117 AND 118 INDEX		PROCESSING AND PROPERTY INDEX		119 AND 120 INDEX	
3					
<p>*Structure of Plastically Deformed Crystals According to the Laue Patterns. II.—Plastically Stretched Magnesium Single Crystals. A. Komar and M. Hochakov (Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki [J. Exper. Theoret. Physics], 1938, 8, (7), 700-704).—[In Russian.] Cf. Ref. Ab., this vol., p. 253. The presence of the diaspora of the K_2 reflections of Mo radiation from the (0001) plane of single crystal magnesium stretched 10% and of "tails" on the Laue diagrams, is due to the heterogeneity caused by the regular distribution of distorted areas which may be represented as a mosaic bending of slip-planes around an axis perpendicular to them.—N. A.</p>					
A50.51A METALLURGICAL LITERATURE CLASSIFICATION					
FROM SYNDICATE		FROM HOWLAV		FROM HOWLAV	
REPLY ONE ONE 101		REPLY ONE ONE 101		REPLY ONE ONE 101	

BC

a-1

Structure of plastically deformed crystals according to Laue patterns. I. A. P. KOCAR. II. Plastically extended single crystals of magnesium. A. P. KOCAR and M. MOYKATAY (Physikal. Z. Sovietunion, 1966, 9, 615-617, 618-617).—I. Theoretical. Laue patterns constructed for circularly bent NaCl crystals by a graphical-analytical method are in agreement with those obtained experimentally. II. The Bragg reflexions of the Mo K α radiation from the (0001) plane of a single crystal of Mg plastically extended by 10% have an angular width of 3°. The experimental Laue diagram for the same crystal is identical with that calc. on the assumption that this angular width corresponds with a macroscopic curvature of the gliding plane of the deformed crystal. O. D. S.

ASM-51A METALLURGICAL LITERATURE CLASSIFICATION

KOMAR, A. P.; MOCHALOV, M. D.

Remote Control Regulator of the Vacuum for the Ionic X-Ray Tube

Zav. Labor. 7, 881, 1938.

POCHALOV, V. D.

"Effect of the Composition and Degree of Order on the
Electromagnetic Properties of Self-Regulating Alloys." Cand
Phys-Math Sci, Ural U, Sverdlovsk, 1954. (RZhKhim, No 17,
Sep 54)

SO: Sun 432, 29 Mar 55

AUTHOR: Mochalov, M. D.

SOV/126-6-5-18/43

TITLE: The Effect of Composition and the Degree of Ordering on Galvanomagnetic Properties of Ordering Alloys (Vliyaniye sostava i stepeni poryadka na gal'vano-magnitnyye svoystva uporyadochivayushchikhsya splavov)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1958, Vol 6, Nr 5, pp 879-885 (USSR)

ABSTRACT: The author studied palladium-copper alloys which were prepared, homogenised and annealed in vacuo. Samples of alloys of the following compositions were prepared: 14.5% Pd, 85.5% Cu; 15.5% Pd, 84.5% Cu; 16% Pd, 84% Cu; 16.5% Pd, 83.5% Cu; 17.5% Pd, 82.5% Cu (all proportions are given in atomic percent). Cast ingots were homogenised at 1000°C for 10 hours. The ingots were rolled down to a thickness of 0.2 mm in several stages. In between these stages the samples were annealed for one hour at 800°C and quenched in water. The author measured the Hall constant R by the usual compensation method (error $\pm 6\%$). The electrical resistivity ρ was measured by means of a Thomson bridge to within 0.9%.

Card1/4 All measurements were made at room temperature. Values

The Effect of Composition and the Degree of Ordering on
Galvanomagnetic Properties of Ordering Alloys

SOV/126-6-5-18/43

of R and ρ were obtained both on increasing the ordering of the alloys and on decreasing it. In both cases values of R and ρ were found to lie on curves of the type shown in Fig.1. The degree of ordering in the alloys was not measured directly; the author took the value of the electrical resistivity as the criterion of ordering (Ref 5). Fig.1 gives the dependences of R and ρ on the temperature of anneal for 14.5% Pd-85.5% Cu alloy. Fig.2 gives the variation of R and ρ with copper content in ordered and disordered states. Fig.3 gives the relationship between R and ρ as a function of the degree of ordering for several of the alloys studied. Curves I, II and III represent 14.5% Pd-85.5% Cu, 17.5% Pd-82.5% Cu and 25.0% Pd-75.0% Cu alloys respectively. There are two groups of curves in Fig.3: group a represents the ordered state; group b - the disordered state. Fig.4 gives the dependence of ΔR_t on $\Delta \rho_t$ as a function of the degree of ordering. Here

Card2/4 $\Delta R_t = R_0 - R_t$; $\Delta \rho_t = \rho_0 - \rho_t$,

SOVZ126-6-5-18/43
 The Effect of Composition and the Degree of Ordering on
 Galvanomagnetic Properties of Ordering Alloys

where R_0 and ρ_0 are the values for the disordered state, while R_t and ρ_t are the values for the ordered state of the alloys. Fig.5 gives the dependence of α (where α is the angle of the slope of the straight lines $\Delta R_t = f(\Delta \rho_t)$) on the amount of copper in the alloys. The following conclusions are made.

1. Transition from the disordered to the ordered state in palladium-copper alloys is accompanied by an increase of the range of variation of R and a decrease of the range of variation of ρ .
2. Variation of R and ρ in ordering of the alloys cannot be explained on the basis of the elementary theory of metals which relates R , ρ and electron density.
3. Changes in the ionic distribution in the crystal lattice of the palladium-copper alloys, which occur on ordering, are accompanied by an increase of the number of positive current carriers and an increase in the number of centres which are responsible for incoherent scattering of these carriers.

Card3/4

SOV/126-6-5-18/43

The Effect of Composition and the Degree of Ordering on
Galvanomagnetic Properties of Ordering Alloys

4. The observed linear relationship between R and ρ during the process of ordering is due to the constancy of the ratio of the numbers of positive current carriers and incoherent scattering centres produced during ordering.

5. The latter ratio varies with the alloy composition.

6. Departure from linearity of the relationship between R and ρ was observed at higher degrees of ordering; it is due to interaction of ordered regions.

There are 5 figures and 8 references, 2 of which are Soviet, 3 German, 1 English and 2 translations from English.

ASSOCIATION: Institut fiziki metallov Ural'skogo filiala AN SSSR
(Institute of Metal Physics, Ural Branch of the Ac.Sc.,
USSR)

SUBMITTED: May 7, 1957

Card 4/4

1977, 12-12-1977, 12-12-1977

Author: Bugayov, A. G., Kochalov, M. D., Litvinov, I. D.

Title: Graphs of the dependence of the detection of beta-radiation gamma
radiation in betatrons (Grafiki zavisimosti vyznacheniya
gamma-izlucheniya)

Periodical: Izvestiya Akademiya Nauk SSSR, Vol. 14, No. 3, pp. 136-138 (1977)

Abstract: Paper presents methods are listed and graphs are given
for the gamma-radiation in betatrons with various energies
of the photons. In evaluation of the data given in these
papers indicate that some difficulties exist, since no co-
efficients are given to convert the sensitivity values, and
Soviet films have different sensitivities. For this reason
in this paper used anastigmatic motion film. The procedure
for obtaining graphs are given. The graphs obtained are
different from those obtained by A. Litvinov
others in that the dashed curve for a beta-radiation of
100 keV is changed and thus gives a more accurate determi-
nation of the dose. A. G. Bugayov, M. D. Kochalov and I. D.
Litvinov, that in irradiating the betatron.

Groups of the exposure and detection of the state and normal variation in
Tetracyclines

It is interesting to note that in the lead studies, which have been carried out up to the present, in the work of the present group it was observed that a similar result is obtained in the earlier γ -radiation. A. N. Lekhinsky, *ibid.*, also participated in the work of this paper. There are 1 drawing, 1 table, and 11 references, 7 of which are Soviet.

DATE: 10/10/1964
TO: DIRECTOR, FBI
FROM: SAC, NEW YORK (100-100000)
SUBJECT: [REDACTED]

35011

S/596/61/000/000/001/001
D217/D304

1.8000

AUTHORS: Buzynov, A. Ye., Yekhlakov, A. D., Motova, Z. A., Mochna-
lov, M. D., and Fakidov, I. G.

TITLE: Action of γ -irradiation from the betatron on X-ray
films, and the constitution of exposure graphs of
irradiated steel

SOURCE: Akademiya nauk SSSR. Institut fiziki metallov. Beta-
tronnaya gamma-defektoskopiya stali. Moscow, 1961.
10 - 25

TEXT: A sensitometric investigation of the action of γ -rays on se-
veral types of films was studied and the distribution of the inten-
sity of irradiation along the cross section of the beam was measu-
red. German films made by Agfa (GDR), Laue, Sino, Texo-R, Texo-S
and the high sensitivity Russian films of factory no. 8, "Rentgen-
X-opytnyy" and "Rentgen-X-opytnyy" sprayed from one side were in-
vestigated. From the sensitometric results obtained, exposure graphs
were plotted. These, in conjunction with curves for the angular dis-
tribution of intensity and figures illustrating the dependence of
Card 1.1

Action of γ -irradiation from . .

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D217/D304

exposure time of defects on the degree of blackening of the film enabled the exposures under various conditions of X-raying to be calculated. It was found that the experimental film "Rentgen-X" sprayed on both sides, was the most sensitive one with respect to γ -rays from the betatron. The German films Agfa, Laue, Agfa Sino and Agfa Texo-R have similar sensitivity characteristics under similar conditions. The film Texo-S is somewhat less sensitive. Intensifying screens considerably shorten the time of exposure. The 1 and 2 mm front lead screens differ little from each other as to their action on the film. With an increase in thickness of the irradiated steel plates, the conventional characteristic curves of the films are displaced in the direction of increasing exposure and change their general character, the linear portion of the curve decreasing in extent. The contrast range also changes somewhat. All imported films, when used in conjunction with the betatron, should receive longer exposures than those indicated by the manufacturer. Curves were constructed for the dependence of the degree of blackening of the film on the distance from the center of the beam for various exposures in the center of the field of irradiation and for

Card 2/3

Action of γ -irradiation from ...

S/596/61/000/000/001/003
D217/D304

steel plates of various thicknesses (50 - 426 mm). Exposure graphs for the Agfa Texo-R film were constructed for several degrees of blackening. Graphs were constructed for two sets of screens used respectively for the determination of small defects (pores, cracks etc.) and for big casting defects. There are 13 figures, 4 tables and 19 references: 7 Soviet-bloc and 12 non-Soviet-bloc. The 4 most recent references to the English-language publications read as follows: A.L. Pace, Non-destructive testing, 12, 1954, no. 2, 21, R Widerøe, Non-destructive testing, 11, 1953, no. 4, 23; C.E. Juran, Non-destructive testing, 11, 1953, no. 8, 25; K. Nelson, Journal Sci. Instr., 33, 1956, no. 1.

Card 3/3

X

35012

S/596/61/000/000/002/003
D217/D304

1.8000

AUTHORS: Buzynov, A-Ye., Yekhlakov, A.D., Mochalov, M.D. and
Fakidov, I.G.

TITLE: Experimental determination of the sensitivity of the
photo-radiographic method of non-destructive testing
by γ -irradiation and by irradiation from a betatron
of 22 Mev

SOURCE: Akademiya nauk SSSR. Institut fiziki metallov. Beta-
tronnaya gamma-defektoskopiya stali. Moscow. 1961.
30 - 35

TEXT: The authors experimented with the models of defects in the
form of cylindrical holes with fairly big diameters (10 mm), so
that the degree of diffuseness of the edge was considerably less
than the radius of the hole. The sensitivity was determined for de-
fects of various depths ΔL , measured along the beam, and for va-
rious total thicknesses of irradiated plates L . The difference in
thickness between sound and faulty places was of relatively little

Card 1/3

Experimental determination of the .

S/596/61/000/000/102/007
D217/D304

significance, owing to the small size of the defects. It can, therefore, be assumed that changes in the characteristic curves of the film used would be insignificant for variations in thickness of this order. A graduated non-destructive testing machine was specially made for the investigation. The apparatus was made in the form of eight segments of a disc, each differing from the preceding one in thickness by 1 mm (except for the first and eighth, which differed from each other by 7 mm). An annular hole of radius 4 cm was drilled through the eight segments; the center of the annulus coincided with that of the disc, and the diameter of the hole was 10 mm. The holes and steps were intended to simulate defects of definite dimensions. The apparatus was placed in front of the irradiated steel plates, and orientated so that its center should coincide with the axis of the betatron beam. Under these conditions, the defects received γ -rays of equal intensity, and shadow images thereof were arranged along the circumference of the film. For exposure, an Agfa Texo-R film, 15 x 20 cm, was placed between the intensifying screens. In order to minimize the dispersed background radiation, a lead screen, 3 mm thick, was placed behind the rear fluorescent screen.

Card 2/3

X

Experimental determination of the ..

S/596/61/000/000/002/003
D217/D304

and a lead screen, 25 mm thick, was placed behind the adaptor. Steel plates of various thicknesses were used as specimens for irradiation. It was found that the relative sensitivity of the radiographic method of betatron testing increases with increase in thickness of the steel plates. The dependence of the magnitude of the smallest detectable defect on the thickness of the irradiated steel plates was established. The size of the smallest detectable defect depends on the thickness and combination of intensifying screens. There are 8 figures and 10 references: 1 Soviet-bloc and 9 non-Soviet-bloc. The 4 most recent references to the English-language publications read as follows: H. Grainer, Non-destructive testing, 15, 1957, no. 4, 234; R. Wideröe, Non-destructive testing, 12, 1954, no. 4, 27. A.L. Pace, Non-destructive testing, 12, 1954, no. 2, 21. E.A. Burri, Non-destructive testing 11, 1952, no. 2, 23.

Card 3/3

X

MOCHALOV, P.

Stand for model grinding of cutting tools. Prof.-tekhn. obr. 20
no. 10:16 0 '63.
(MIRA 16:12)

SUGEYKO, V., prepodavatel'; MOCHALOV, P.

Universal and demonstration stand. Prof.-tekh. obr. 22 no. 6.
21 Je '65. (MIRA 18:7)

1. Sel'skoye professional'no-tekhnicheskoye uchilishche No.3,
Berdichev (for Sugayko).

MOCHALOV, P.P.

Safety wrench. Mashinostroitel' no.11:16 N '64 (MIRA 18:2)

L 40915-66 EWT(d)/EWT(m)/EWP(f)/EWP(c)/EWP(v)/T/EWP(t)/ETI/EWP(k)/EWP(h)/EWP(l)
ACC NR: AP6020739 IJP(c) JD/HW/JH SOURCE CODE: UR/0136/66/000/006/0072/0076

AUTHOR: Mochalov, P. P.; Dogadin, B. V.; Partin, I. A.

ORG: none

TITLE: Adaptation of plant equipment for single sheet annealing of aluminum alloys

SOURCE: Tsvetnyye metally, no. 6, 1966, 72-76

TOPIC TAGS: aluminum alloy, annealing, metallurgic furnace

ABSTRACT: The authors describe basic designs and subsequent in-plant modifications of KAPZ-5 and KAPZ-7 conveyor type annealing furnace systems, capable of annealing sheets 0.8 to 3.5 mm thick and with maximum dimensions of 2000x5000 and 2000x7000 mm respectively. Two chain conveyor systems, powered by a single P-91 32-kw d-c motor, transport each sheet separately through a rectangular vertical hot air furnace chamber. The sheet suspension system is treated in detail. The overall installation is easily incorporated into a factory flow line. Productivity is 1.5 to 3.5 t/hr, depending on the thickness of the 7000 mm sheet. The reject factor averaged 0.22%. Temperature gradients across the annealed sheet did not exceed 3 to 5C. Major components of the system are described and illustrated. Material specifications are given for parts subject to significant wear and temperature variations.

UDC: 669.716:621.78

Card 1/2

L 40915-66

ACC NR: AP6020739

S. A. Baum, M. K. Gur'yev, A. V. Kizilov, Ye. Ya. Osipov, A. P. Chernoskutov, A. A. Nadezhin, B. P. Skachek, N. V. Martynov, I. I. Ken, B. V. Kulygin, Ye. M. Ivanov, G. D. Dymov, M. I. Kudryavtsev, and A. I. Nabatchikov took part in the work. Orig. art. has: 4 figures.

SUB CODE: 13/ SUBM DATE: 00/ ORIG REF: 000/ OTH REF: 000

Cord 2/2 11b

MOCHALOV, P. V.

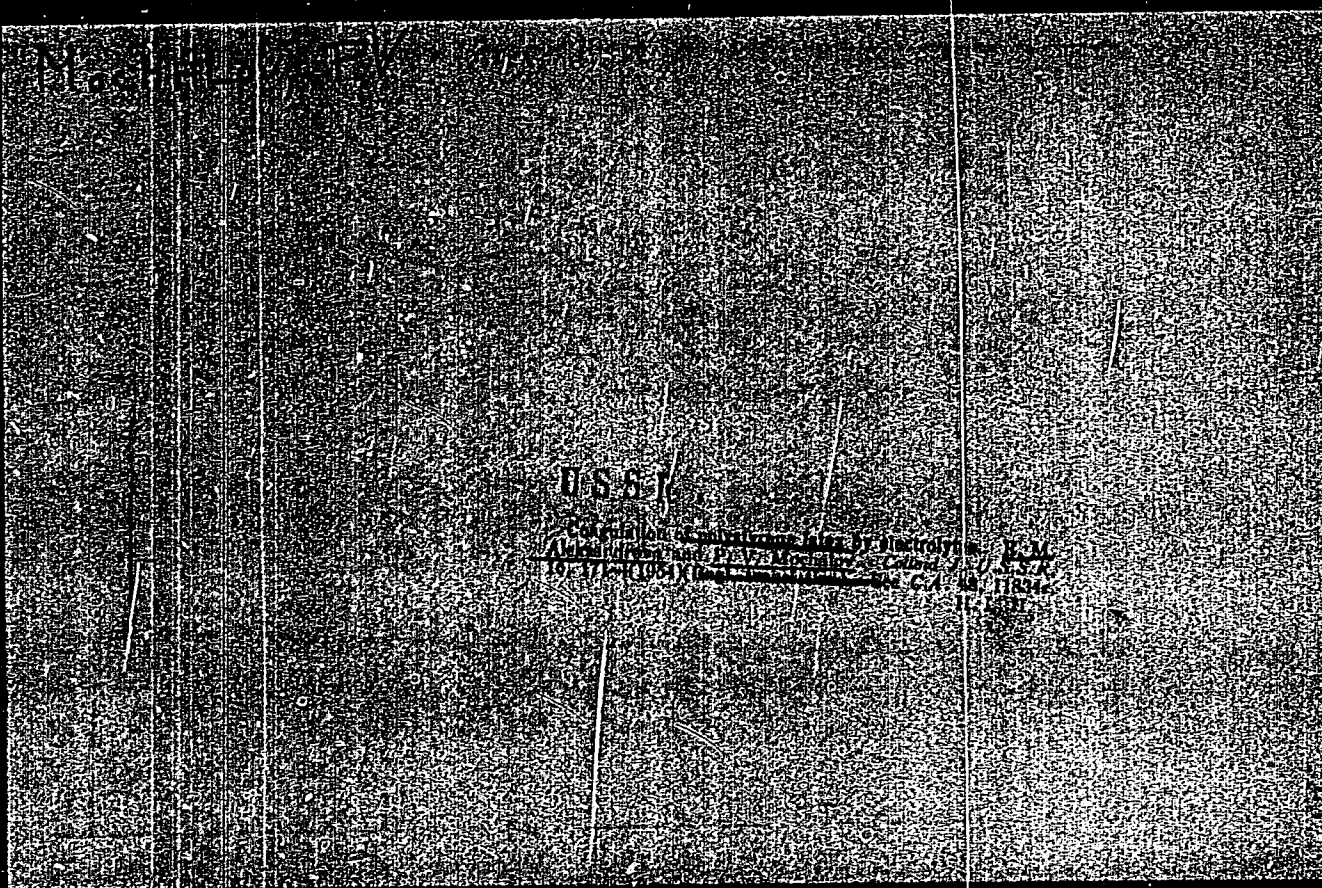
MOCHALOV, P. V. - "Coagulating and Sorptive Stability of Hydrosols of Polystyrol." Sub 19 Nov 52, Moscow Order of the Lenin Chemicotechnological Inst imeni D. I. Mendeleyev. (Dissertation for the Degree of Candidate in Chemical Sciences).

SO: Vechernaya Moskva January-December 1952

ALEKSANDROVA, Ye.M.; KOCHALOV, P.V.

Coagulation of polystyrene latexes by electrolytes. Koll.shur. 16
no.3:161-165 '54. (MLRA 7:7)

1. Moskovskiy khimiko-tekhnologicheskij institut im. D.I.Mende-
leyeva, Laboratoriya kolloidnoy khimii.
(Coagulation) (Rubber, Synthetic)



Mochalov, P.V.

USSR

Sorption of the particles of polystyrene latex on paper.
E. M. Aleksandrova and P. V. Mochalov. *Colloid J.*
(U.S.S.R.) 16, 393-4 (1954) (Engl. transl.).
49, 7857a.

H. L. H.

3
2 MAY
1954
JUL

U S S R .

Sorption of the particles of polystyrene latex on paper.
M. M. Abkhanidze and P. V. Mochalov (D. I. Mendeleev
Inst. Chem. Technol., Moscow). Kolloid. Zhur. 16, 401-5
(1954); cf. G.A. 48, 11834c.—Particles of polystyrene latex
 stabilized with a substituted Na naphthalenesulfonate were
 not sorbed by ashless paper unless a salt was present, when
 slow sorption (e.g., for 30 hrs.) took place. The final amt.
 α sorbed by 1 g. paper increased with salt concn, x ; at
 larger x (e.g., $> 0.017M$ NaCl), α increased also with the
 latex concn, c , but at small x values α had a max. at a me-
 dium c because more concd. latices were inherently more
 stable. At const. c and x , α was greatest for NH_4Cl ; e.g.
 at $c = 0.68$ g./l. and $x = 0.01M$, α was 10, 8, and 6 mg.
 for NH_4Cl , KCl , and $NaCl$, resp. In the presence of $CaCl_2$,
 large α occurred between 0.5 and 8 millimoles/l., and sorption
 could not be detected in the presence of $AlCl_3$. The α
 decreased when pH increased from 2 to 3.2. When the
 electrokinetic potential ζ (from electrophoretic measure-
 ments) of latex in the presence of various salts was compared
 with the corresponding α values, only 2 curves resulted;
 one was common to NH_4 , Na, K, and Rb salts; and the
 other to Mg, Ca, and Ba salts; at a given ζ , the α in the
 presence of bivalent cations was, e.g., twice as great as with
 univalent cations because Mg^{++} , Ca^{++} , and Ba^{++} not
 only affected the elec. mobility of the particles but also re-
 acted with the emulsifier. The emulsifier also was sorbed
 by the paper.

J. J. Bikerman

82

MOCHALOV, P.V., kand.khim.nauk

~~Physical and chemical properties of plastics and their use in~~
technology. Politekh. sbuch. no.9:60-66 S '58. (MIRA 11:10)
(Plastics)

MOCHALOV, R.V. (Chita)

Practical work of the sixth grade students in studying a measuring
glass. Fiz. v shkole 22 no.3:86-87 My-Je '62. (MIRA 15:7)
(Mensuration---Study and teaching)

SOV/124-58-4-4570

Translation from: Referativnyy zhurnal. Mekhanika, 1958, Nr 4, p 130 (USSR)

AUTHOR: Mochalov, S. D.

TITLE: On the Problem of the Elastic-plastic Wave Propagation Along a Bar With a Variable Elastic Limit (K voprosu o raspostraneni uprugoplasticheskikh voln vdol' sterzhnya peremennogo predela uprugosti)

PERIODICAL: Uch. zap. Tomskogo un-ta, 1955, Nr 25, pp 49-67

ABSTRACT: The article considers a longitudinal impact at the butt end of a semi-infinitely long bar which causes an elastic-plastic deformation. The elastic limit of the bar is considered to be variable, with either decreasing or increasing modulus of elasticity along the direction of the wave propagation. The subject work differs from that of H. A. Rakhmatulin's (Prikl. matem. i mekhan. 1950, Vol 14, Nr 1) by the choice of the function giving the variation of the stress σ against the deformation ϵ . It is assumed that all the characteristic properties of the σ versus ϵ function pertaining to static loading and unloading remain valid during impact action; the solution is made by the method of characteristics. This

Card 1/2

SOV/124-58-4-4570

On the Problem of the Elastic-Plastic Wave (cont.)

approach is generally accepted in such cases when a single dynamic curve is substituted for the static σ - versus - ϵ curve. The work of Lee (Lee, E. H., Quart. Appl. Math., 1953, Vol 10, Nr 4, pp 335-346, RZhMekh 1953, Nr 1, abstract 326), wherein the propagation of an elastic-plastic wave is investigated in a short bar, covers some of the field of the author's work. A somewhat different approach to the solution of the problem and different results have been obtained by the reviewer for the case of the wave propagation in the direction of decreasing elastic limit (Prikl. matem. i mekhan., 1954, Vol 18, Nr 2).

1. Beams--Vibration 2. Beams--Elasticity 3. Mathematics N. F. Lebedev

Card 2/2

124-57-2-2273

Translation from: Referativnyy zhurnal, Mekhanika, 1957, Nr 2, p 116 (USSR)

AUTHOR: Mochalov, S. D.

TITLE: On the Repeated Impact on the End of a Semi-infinite Bar (O mnogokratnom udare po kontsu polubeskonechnogo sterzhnya)

PERIODICAL: Uch. zap. Tomskogo un-ta, 1955, Nr 25, pp 68-76

ABSTRACT: Examination of the problem of the cumulative residual strain in a bar subjected to repeated longitudinal impact loadings. This subject has been studied by Kh. A. Rakhmatulin (Prkl. matem. i mekhanika, 1946, Vol 10, Nr 3, 1950, Vol 14, Nr 1) under certain limitations imposed on the relationship between stress and strain. The author states that the abovementioned problem was solved by him under assumptions differing from those entertained by Rakhmatulin, but the results obtained by him do not differ from those found by Rakhmatulin. There is no investigation of the propagation of the longitudinal waves in the bar. The author merely refers to another paper of his (Uch. zap. Tomskogo un-ta, 1955, Nr 25). Also lacking is a detailed comparative analysis of the assumptions made in the present paper and those entertained by Rakhmatulin.

Card 1/1

1. Beams--Stresses

N. A. Kilchevsky

USSR / General and Specialized Zoology. Insects.

P

Abstr Jour: Ref Zhur-Biol., No 2, 1958, 6869.

Author : Zrazhevskaya, O. N., Kamyany, L. A., Mochalov, S.P.

Inst : Not given.

Title : From the Practice of Using the DDT Technical Solution in Diesel Fuel Against Forest Pests.

Orig Pub: Lesn. kh-vo, 1956, No 10, 74-76.

Abstract: Plantings were sprayed with a 5% DDT solution in diesel fuel from a plane during the emergence of the pine silkworm in 1954 (40 and 20 litres per hectare). The larvae mortality was high (92%), in spite of the fact that during the spraying the meteorological conditions were unfavorable. The seat of the oak leaf-roller was sprayed with a 5% and 10% oil solution (20 litres per hectare); 99.3% and 99.5% of the larvae correspondingly perished. As a result of aerial treatment in favorable

Card 1/3

USSR / General and Specialized Zoology. Insects.

P

Abs Jour: Ref Zhur-Biol., No 2, 1958, 6869.

Abstract: weather with a 5% DDT dust and 12.5% HCCH dust (16-20 kg per hectare), 4% DDT solution (40 litres per hectare), 10% solution of DDT (20 litres per hectare) and 2% DDT emulsion, 91-98% of the larvae of the annular silkworm (by dusting), 99.5% (by oil solution) and 95% and 96% (by emulsion) have been correspondingly destroyed. A production aerospraying in 1955 with a 5% DDT oil solution (20 litres per hectare) and a 1% DDT emulsion emulsion (25 litres per hectare) destroyed 99.6% and 86% of the pseudolarvae of the common pine saw-fly and 99% and only 10% of the larvae of the brown-tail moth. The cost of 20 kg DDT dust and 20 litres of 5% DDT solution for the treatment of one hectare was correspondingly 26 rubles, 60 kopecks and 15 rub. 16 kop. The loading of the An-2

Card 2/3

MOJHALOV, S.P.

Effect of nerve transfer operation on the motor function of the hand.
28 no. 11 1965. N-1 1965.

1. Efedra nashal'noy flakirovki (Zakl. - prof. V.I. Mozhalev, 1965)
Bashkirskoy meditsinskoy instituta, Ufa.

L 07413-67		EWT(m)/EWP(w)/EWP(t)/ETI/EWP(k)		IJP(c)		JD/HW/JH	
ACC NR: AP6032848		SOURCE CODE: UR/0020/66/170/003/0540/0543					
AUTHOR: <u>Belyakov, L. V.; Valitskiy, V. P.; Zlatin, N. A.; Mochalov, S. M.</u>							
ORG: <u>Physical-Technical Institute im. A. F. Ioffe, Academy of Sciences SSSR (Fiziko-tekhnicheskii institut Akademii nauk SSSR)</u>							
TITLE: <u>The melting of lead in a shock wave</u>							
SOURCE: AN SSSR. Doklady, v. 170, no. 3, 1966, 540-543							
TOPIC TAGS: shock wave, x ray photography, high speed camera, pressure distribution, specific volume, thermodynamic analysis							
ABSTRACT: A study was made of adiabatic heating of lead to the fusion point during impact shock loading. Thermodynamic analysis of melting in a shock wave is presented and schematic drawings are given of pressure as a function of specific volume and distance. Thermodynamic equations are given for the specific work done by pressure to $\alpha\lambda$, where λ is the specific heat of fusion and α is a coefficient which depends on the shock pressure. Melting in a shock wave resulted in an entropy increase and a change in pressure distribution. These analytical results were checked by shock wave experiments on lead, in which high speed x-ray photographs were taken of the fractured ends of lead sheets. Impact velocities ranged from 1085 to 1570 m/sec. A sharp change in fracture appearance occurred at an impact velocity of 1250-1300 m/sec; this coincided							
Card 1/2		UDC: 531.66.001.11					

L 07113-67

ACC NR: AP6032848

3
with a mass velocity of 700 m/sec. It is known that melting of lead occurs in a shock wave when the mass velocity becomes 650-700 m/sec. This velocity corresponded to a pressure of $230-250 \times 10^3$ atm and to a 22-23% change in specific volume. X-ray photographs are also shown of fracture in 1 mm thick lead sheets at an impact velocity of 1340 m/sec, during time intervals of 15, 30, 45, and 54 μ sec. These tests show that the difference between the speed of the split flange (initial fracture condition) and the residual mass of the "whiskers", (final fracture condition) was 3%, verifying the specific work equation. Sheet thicknesses ranging from 0.5 to 3 mm were tested 15 μ sec after the moment of fracture at 1340 m/sec. Some of the sheets were covered with 0.05 mm thick aluminum foil during testing. The use of the foil changed the spacings of cleavage "whiskers". These experiments confirmed that the originally postulated position of shock adiabates of lead in the solid and two-phase conditions was correct. A calculation of the relaxation time from the data gave 3×10^{-7} sec. Presented by Academician B. P. Konstantinov on 13 December 1965. Orig. art. has: 4 figures, 2 formulas.

SUB CODE: 11/ SUBM DATE: 27Nov65/ ORIG REF: 008/ OTH REF: 001

Card 2/2 *pld*

MOCHALOV, T. P. --

"The Operative Treatment and Clinical-Morphological Characteristics of Tuberculosis of the Knee Joint." 6th Med Sci, Central Inst for the Advanced Training of Physicians, 2 Nov. 54. (77, 22 Oct 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (10)

SC: Sum. No. 481, 5 May 55

KALEZHIRIN, Yu.; MOCHALOV, V.

Prevent explosions in ignition systems of the 8CK gas-engine compressors. Bezop.truda v prom. 5 no.6:35 Je '61. (MIRA 14:6)

1. Predsedatel' komissii partiynogo kontrolya deyatel'nosti administratsii po tekhnike bezopasnosti neftepromyslovogo upravleniya Bugul'manef't' (for Kalezhirin).
(Gas and oil engines--Safety measures)

MOCHALOV, V.A.; MATYUSHCHENKO, D.D.; KRIVITSKIY, A.A.; GLEZER, G.N.;
OPARIN, I.M.; KHEYMAN, E.L.; SMETNEV, N.N.; EPSHTEYN, A.L.;
GUSEV, B.Ya.; LEYKIN, L.P.; MARCHENKO, G.M.; FISHKOV, V.G.;
SAPROVSKIY, S.V.; LYAKHOVSKIY, I.I.; SMELYAKOV, Ye.P.; VAYNTRAUB,
D.A.; BUDYLIN, M.M.; NOTKIN, Ye.M.; KUR, G.Ye.; ARONSHTEYN, N.A.;
SUKHAREV, V.I.; VINOGRADOV, K.N.; BOBROVSKIY, N.S.

Innovators' certificates and patents. Mashinostroenie no. 2:
103-109 Mr-Ap '64. (MIRA 17:5)

I 14636-66 EWT(1)/EWP(e)/EWP(m)/EWT(m)/EPF(n)-2/EWA(d)/EWP(v)/EWP(j)/T/FCS(k)/
 ACC NR: AP6003581 EWP(b)/ SOURCE CODE: UR/0170/66/010/001/0003/0010
 ETC(m)-6/EWA(1) WW/RM/WH
 AUTHOR: Brdlik, P. M.; Mochalov, V. A.
 ORG: Institute of Structural Physics, Moscow (Institut stroitel'noy fiziki)
 TITLE: Experimental study of free convection with porous blowing and suction on a vertical surface 21,44,55
 SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 10, no. 1, 1966, 3-10
 TOPIC TAGS: convective heat transfer, boundary layer suction, laminar flow, turbulent flow
 ABSTRACT: The experiments were made on porous copper plates with a porosity coefficient of approximately 0.5. Five plates were used; they had an effective area of 200 x 300 mm and a thickness of approximately 10 mm. The plates were mounted flush to textolite (resin-impregnated laminated cloth) bodies having shaped grooves. Thus, it was possible to obtain a total height of the working section of 1000 mm and a width of 300 mm. Each textolite body with its plate was carefully sealed and had its own independent heating system and gas supply. Air was blown and sucked out by blowers. The rate of blowing and suction could be varied
 Card 1/2
 UDC: 536.25

L 14636-66

ACC NR: AP6003581

6
within wide limits. The plates were heated by radiant heaters. The temperature of the blown and sucked air near the plates and at the inlet to the textolite body was measured with Chromel-Kopel thermocouples. Measurement of the temperature field in the boundary layer and of the wall temperatures were carried out with a Mach-Zender Type IZK-454 interferometer with a working field 225 ± 5 mm in diameter. The experimental unit was placed in a container which could be displaced smoothly in two vertical directions, so that any given section of the model under investigation could be observed. A figure shows a comparison of experimental and calculated data on the temperature distribution in the boundary layer, and a second figure shows a comparison of experimental and calculated values of the heat transfer coefficient during free convection with blowing and suction. The article concludes with a ^{4,5} theoretical consideration of the transition from laminar to turbulent flow and of the special characteristics of the boundary layer at large blowing or suction values. Orig. art. has: 19 formulas and 4 [06] figures.

SUB CODE: 20/ SUBM DATE: 28Sep65/ ORIG REF: 003/ OTH REF: 005
ATD PRESS: 4/99

Card 2/280

1. F114-65 ENT(1)/EPP(6)/EPP(n)-2/EQ(m)/EPR Pr-4/Pe-4/Pu-4 34
 ACCESSION NO. AP8006230 6/01/70/65/008/002/0229/0237

AUTHOR: Bdzlik, P. M.; Kochalov, V. A.

TITLE: Porous blowing and suction with free convection near a vertical surface (laminar boundary layer)

SOURCE: Fizhenomno-fizicheskii zhurnal, v. 9, no. 2, 1965, 229-237

TOPIC TAGS: heat transfer, heat exchange, laminar boundary layer, free convection

ABSTRACT: An approximate method for calculating free-convection heat transfer on a vertical surface with porous blowing and suction for $T_{wall} = \text{const}$ is presented. The values of Nu_s and $\delta(\eta)$ may be calculated by

$$Nu_s = 123.4 \left[\frac{504.4}{Pr^2 (1 - 0.5 Pr)} \right]^{-1/4} \left[1 - \frac{7 Pr^2 (1 - 0.5 Pr)}{20 \sqrt{1 - 0.5 Pr}} \right] \times$$

$$\times \left[6 + \left[\left(\frac{504.4}{Pr^2 (1 - 0.5 Pr)} \right)^{1/4} Pr - \frac{3 Pr^2 (1 - 0.5 Pr)}{10 \sqrt{1 - 0.5 Pr}} \right]^{-1/4} \right]$$

Card 1/2

1. 1/11/65

ACCESSION NO. AP5006230

and:
$$\left(\frac{u}{u_0}\right) = \exp\left(-\frac{504.4}{\sqrt{Re}(1+0.001 Pr)}\right) \times \left(1 - \frac{Pr(Re-0.001 Pr) Re (Gr/4)^{-1/4}}{20 \sqrt{2} Pr (Re-0.001 Pr)}\right)$$

which become

$$(u/u_0) = 5.42 (Gr)^{-1/4} [1 - 0.288 Re (Gr/4)^{-1/4}]$$

$$Nu = 0.560 (Gr)^{1/4} [1 - 0.288 Re (Gr/4)^{-1/4}] [1 + 0.182 Re (Gr/4)^{-1/4}]$$

for $Pr = 0.72$. The method of calculation gives results with accuracy sufficient for practical purposes if the parameters of blowing and suction are in the following range:

$$\left|\frac{u_0}{u_1}\right| \left(\frac{Gr}{Gr_0}\right)^{-1/4} < 0.75 \text{ for } Pr = 0.72$$

$$\left|\frac{u_0}{u_1}\right| \left(\frac{Gr}{Gr_0}\right)^{-1/4} < 0.70 \text{ for } Pr = 1.0$$

Orig. doc. has 3 figures, 35 formulas.

ASSOCIATION: Institut stroitel'noy fiziki Moscow (Institute of Structural Physics)

SUBMITTED: 1/11/65

ENCL. 00

SUB CODE: TD, ME

NO REF SOV 006

OTHER: 001

MOCHALOV, Vasily Dmitriyevich, for Doc Hist Sci on the basis of Dissertation
defended 19 Feb 59 in Council of Inst of History, Acad Sci USSR, entitled
"Peasant ~~the~~ ^{economic} in Transcaucas^{us} by the end of the 19th century." (Sovetskoye Vostok, 1-61, 29)

-307-

MOCHALOV, Vasilii Dmitriyevich; SIVKOV, K.V., prof., otv. red.; LANDA,
N.M., red. izd-va.; GUSEVA, I.N., tekhn. red.

[Peasant economy in Transcaucasia at the end of the 19th
century] Krest'ianskoe khoziaistvo v Zakavkaz'e k kontsu XIX v.
Moskva, Izd-vo Akad. nauk SSSR, 1958. 491 p. (MIRA 11:11)
(Transcaucasia--Peasantry)

MOCHALOV, V.F.

Nomograms for selecting the deflection arrangement of the
bottom of a drilling string. Neft. khoz. 41 no.4:14-19 Ap
'63. (MIRA 1963)

MOCHALOV, V.I.

Improve the supply of drugs to the rural population. Apt.delo 4
no.2:3-8 Mr-Ap '55. (MLRA 8:5)

1. Zamestitel' nachal'nika GAFU Ministerstva zdravookhreniya RSFSR.
(PHARMACY,
in Russia, rural)
(RURAL CONDITIONS,
rural pharm. in Russia)

AUTHOR: Kozlov, V. A.

NAME Instrument for measuring superheat temperature of rotating machine parts
CLASS 3 NO. 168916

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 5, 1965, B2

TOPIC TAGS: electric motor, temperature measurement, pyrometer, stroboscope

ABSTRACT: This Author Certificate presents an instrument for measuring the superheat temperature of the rotary parts in a machine, such as the armature disc of an electric motor. The instrument contains a photoelectric pyrometer with a rotating shutter (see Fig. 1 on the Enclosure). The shutter is equipped with a drive mechanism to ensure a synchronous rotation with the machine part. This is done to improve the measurement accuracy by making use of the stroboscopic effect. One set has 1 figure.

RESOLUTIONS

SUBMITTED 20-1-62

ENCLOSURE 01

SUB CODE: 222, 223

NO REF SOV: COO

OTHER: 000

2000

8951-66 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l)
ACC NR: AP5026513 SOURCE CODE: UR/0286/65/000/019/0042/0042
AUTHOR: Mochalov, V. K. 20
ORG: none B
TITLE: A device for magnetizing ring-shaped permanent magnets. Class 21, No. 175139
/announced by Organization of the State Committee for Defense Engineering SSSR
(Organizatsiya gosudarstvennogo komiteta po oboronomoy tekhnike SSSR)/
SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 19, 1965, 42
TOPIC TAGS: permanent magnet, magnetization, magnet coil
ABSTRACT: This Author Certificate presents a device for magnetizing ring-shaped permanent magnets. This device was previously discussed in Author Certificate No. 157454. It is designed for the simultaneous magnetizing of two ring-shaped magnets during a single working cycle. The radial cores are placed in the magnetic circuit from both of its end directions. This device provides simultaneous magnetizing of two magnets with a different number of poles. The numbers of radial cores at the two opposite ends of the magnetic circuit are different.
SUB CODE: 09, 13/ SUBM DATE: 24Sep64

Card 1/1 pw

UDC: 621.318.24

MOCHALOV, V. V.

PA 29/49T26

USSR/Engineering
Drills
Mining Equipment

Aug 48

"Drill BSM-4," V. V. Mochalov, Mining Engr, 4 pp

"Mekh Trud i Tyazh Rabot" No 8

Describes apparatus under: (1) kinematic system of apparatus, (2) operation and performance of BSM-4, and (3) functioning of apparatus when in use, and its productivity. Large-scale tests have been conducted to determine its operation under far northern conditions.

29/49T26

MOCHALOV, V. V.

PA 16/49T102

USSR/Mining Equipment
Drills, Electric

Oct 48

"Electrical Drill BSM-4," V. V. Mochalov, 2½ pp

"Gor Zhur" No 10

Describes construction and operation of drill,
with sketches. It is intended for use in stripping
operations.

16/49T102

KOCHALOV, V.V.

Biological aspects of irrigation in strawberry culture. Trudy Bot.
sada Zap.-Sib. fil. AN SSSR no.2:119-124 '57. (MIRA 11:10)
(Strawberries) (Irrigation)

MOCHALOV, V.V.

Optimum irrigation conditions for strawberries. Agrobiologia
no.6:941-942 M-D '59. (MIRA 13:4)

1. Novosibirskaya opytnaya stantsiya plodovo-yagodnykh
kul'tur imeni I.V.Michurina.
(Strawberries) (Irrigation farming)

MOCHALOV, V. V.

Cand Agr Sci - (diss) "Effect of soil moisture on the growth and fruitbearingness of strawberry plants." Omsk, 1961. 15 pp; (Author-indexed List of Dissertations Defended at the Omsk Agricultural Inst imeni S. M. Kirov); 150 copies; free; (KL, 6-61 sup, 232)

CHEPIKOV, A.K., kand.sel'skokhoz.nauk; MOCHALOVA, T.Ya., kand.sel'skokhoz.nauk;
MOCHALOV, V.V., starshiy nauchnyy sotrudnik; ZHEVLAKOV, V.V.,
agronom-pitomnikovod

Is the bacterial crown gall harmful? Zashch. rast. ot vred. i
bol. 6 no.3:17-18 Mr '61. (MIRA 15:6)
(Crown-gall disease)

KUPEPMAN, P.I.; GRYAZNOV, N.S.; MOCHALOV, V.V.; FROLOV, V.V.; MUSTAFIN, F.A.;
 PUSHKASH, I.I.; SLAVGORODSKIY, M.V.; LAZAREV, B.L.; BORISOV, V.I.;
 Prinimali uchastiye: CHERKASOV, N.Kh.; ZABRODSKIY, M.P.; RYTCHENKO,
 A.I.; RUTKOVSKAYA, Ye.N.; SAITBURGANOVA, N.I.; SHTAGER, A.A.;
 SHISHLOVA, T.I.; BUDOL', Z.P.; MEN'SHIKOVA, R.I.; GORELOV, L.A.;
 AGARKOVA, M.M.; KOUROV, V.Ya.; KOGAN, L.A.; BEZDVERNYI, G.N.;
 POKROVSKIY, B.I.

Effect of the lengthening of the coking time on the coke quality and
 testing of coke in the blast furnace process. Koks i khim. no.9:
 23-28 '63. (MIRA 16:9)

1. Vostochnyy uglekhimicheskiy institut (for Kuperman, Gryaznov,
 Mochalov, Kogan, Bezdvernyy, Pokrovskiy). 2. Ural'skiy institut
 chernykh metallov (for Frolov). 3. Nizhne-Tagil'skiy
 metallurgicheskiy kombinat (for Mustafin, Pushkash, Slavgorodskiy,
 Lazarev, Cherkasov, Zabrodskiy, Rytchenko, Rutkovskaya,
 Saitburganova, Shtager, Shishlova, Budol', Men'shikova).
4. Koksokhimstantsiya (for Borisov, Gorelov, Agarkova, Kurov).
 (Coke—Testing)

KONONOV, Vladimir Pavlovich; MOCHALOV, Vladislav Yevgen'yevich;
POSTIK, Klavdiy Mikheylovich; TISHEKOVETS, I.V.; otv.
nauchn. red.; TURANDINA, L.A.; red.

[Repair of ship systems and piping] Remont sudovykh sistem
i truboprovodov. Leningrad, Sudostroenie, 1965. 231 p.
(MIRA 18:10)

MOCHALOV, V. Z.

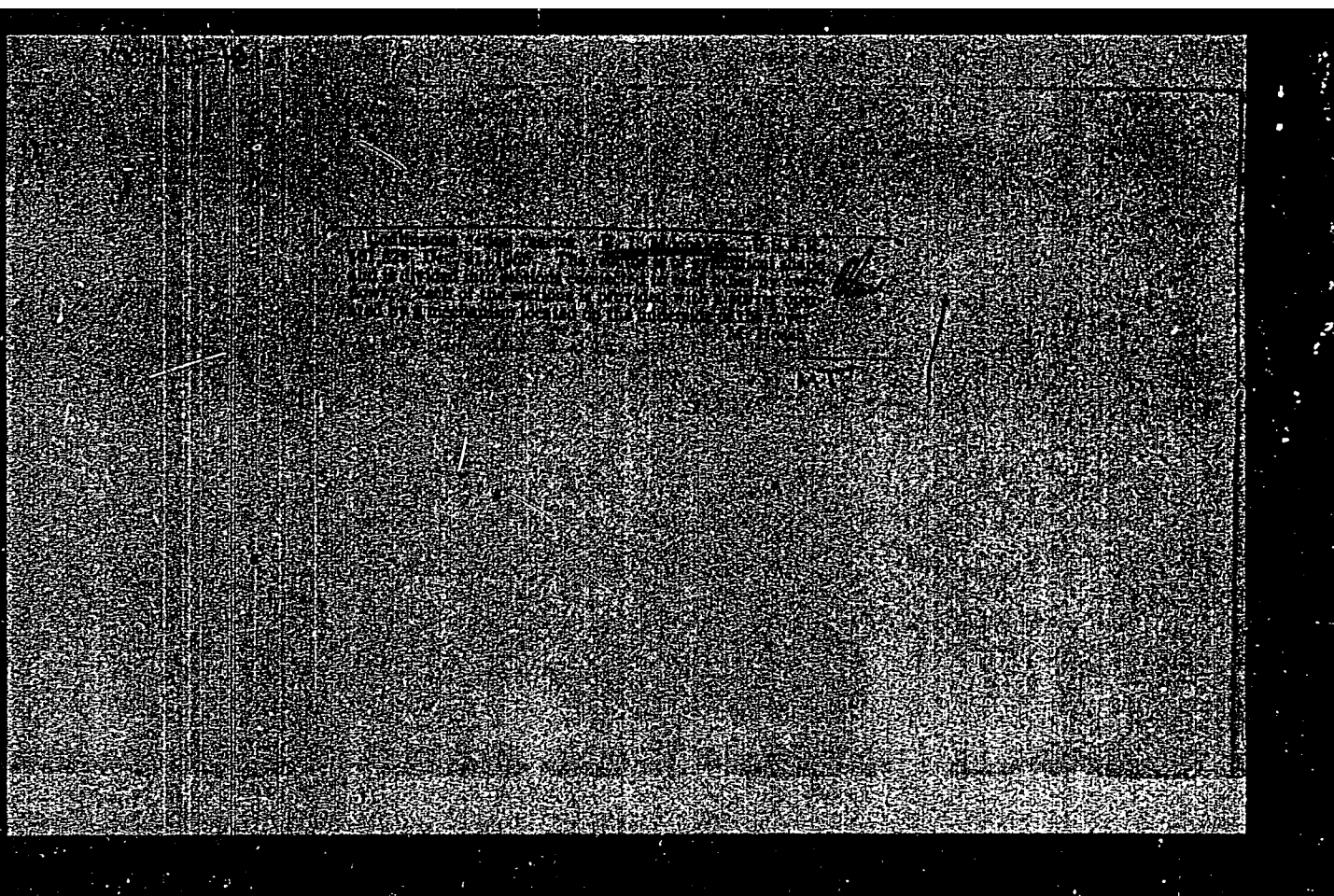
Apple

Accelerated growth of apple seedlings. Sad i ng. No. 2, 1952.

9. Monthly List of Russian Accessions, Library of Congress, May 1952, Uncl.

"APPROVED FOR RELEASE: 06/14/2000

CIA-RDP86-00513R001134820012-9



APPROVED FOR RELEASE: 06/14/2000

CIA-RDP86-00513R001134820012-9"

Record No. 1
MOCHALOV, Ye.I.

Brush-type centrifugal apparatus for drying and grinding material
in thin layers. Med.prom. 11 no.11:35-37 N '57. (MIRA 11:1)

1. Khimio-farmatsevticheskiy zavod "Akrikhin"
(DRUGS--DRYING)

S/285/63/000/002/007/012
A052/A126

AUTHOR: Mochalov, Yu.A.

TITLE: Ideal cycle of gas turbine unit p-const with intermediate regeneration

PERIODICAL: Referativnyy zhurnal. Otdel'nyy vypusk. 49. Turbostroyeniye, no. 2, 1963, 13, abstract 2.49.79. (Tr. Kazakhsk. s.-kh. in-ta, v. 8, no. 3, 1960, 133 - 146)

TEXT: It is suggested using the intermediate regeneration with the purpose of raising the optimum pressure increase degree in the cycle and to raise by this the limit power of the gas turbine unit. A theoretical investigation of the gas turbine unit cycle with intermediate regeneration was carried out. It is asserted that such a cycle enables one to control the gas turbine unit power without impairing the economy on account of the reduced degree of regeneration. Furthermore, at intermediate regeneration when gas is taken to the regenerator from the intermediate stages of the turbine, the volume and weight of the generator are lower than in the conventional regeneration cycle.

[Abstracter's note: Complete translation.]
Card 1/1

I. Barskiy

MOCHALOV, Yu. G.

100/100

21(3)

Vsesoyuznaya nauchno-issledovatel'skaya organizatsiya po prikladnoy fizike i tekhnologii i fiziko-tekhnicheskoy i tekhnicheskoy v narodnoy aviatse i nauchy Moscow, 1957.

Trudy... Mashinostroyeniya i Prikladnoy Fiziki (Transactions of the All-Union Conference on the Use of Radioactive and Atomic Isotopes and Radiation in the National Economy and Science, Machine and Instrument Manufacturing) Moscow, Izd-vo MFTS, 1958. 358 p. 4,500 copies printed.

Sponsoring Agencies: VSN. Osnovnye upravleniya po ispol'sovaniyu atomnoy energii, and Akademiy nauchy.

Editorial Board of Set: V.I. Pichugin, Academician (Resp. Ed.), E.M. Shumilovskiy (Deputy Resp. Ed.), Yu. G. Mochalov (Deputy Resp. Ed.), L.M. Tachenko, E.I. Verkhovskiy, S.I. Maslov, E.I. Petukhov and N.G. Zeleninskaya (Secretary).

Ed. of Publishing House: P.M. Delyanin; Tech. Ed.: T.P. Fomenko.

PURPOSE: This book is intended for specialists in the field of machine and instrument manufacturing who use radioactive isotopes in the study of materials and processes.

CONTENTS. This collection of papers covers a very wide field of the utilization of tracer methods in industrial research and control techniques. The topic of this volume is the industry. The individual papers discuss the applications of radioactive isotopes in the study of metals and alloys, processes, and defects in metal-casting, metal cutting, engine parts, and safety devices. Several papers are devoted to the use of radioisotopes in the automation of industrial processes, recording and measuring devices, quality control, flowmeters, level gauges, safety devices, radiation counters, etc. These papers represent contributions of various Soviet institutes and laboratories. They were published as Transactions of the All-Union Conference on the Use of Radioactive and Stable Isotopes and Radiation in the National Economy and Science, April 4-12, 1957. No personal titles are mentioned. References are given at the end of most of the papers.

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(LEPROSY, pathology,
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(PERIARTERITIS NODOSA, compl.

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